Cap Management Strategy

Maryland's Tributary Strategy is a plan to reduce current pollutant loads (nitrogen, phosphorus, and sediment) to levels that will enable the Bay to achieve water quality standards. These allowable pollutant loads are called allocations, which are divided among the various States and the watersheds within those States. The Bay currently receives loads much larger than the allocations; thus the loads need to be significantly reduced to achieve the water quality standards.

The standards are based on the best scientific knowledge of the conditions necessary for the Bay's living resources (e.g., fish, crabs, clams, submerged aquatic vegetation, etc.) to thrive. Once these standards are met, the Bay will be considered restored and no longer an impaired water body. The load allocations are an estimate of the maximum amount of pollution permissible. Once the allocations, or water quality standards, are reached, they must be maintained and the pollution loads must not be allowed to rise above the cap. If the cap is not maintained, the water quality will degrade again to the detriment of the Bay.

Current efforts seek to reduce loads in the face of increased development and population in Maryland. A strategy must be developed that will enable continued growth and increasing population and still not exceed the pollutant cap. There are several key components to the Cap Management Strategy, each raising questions about how to best approach cap management. These include the following:

- **Technical Components:** What techniques and practices are available to reduce the amount of pollution from any specific activity? How are they tracked and quantified? How will pollutant reductions be credited?

- **Policy Components:** How will processes and permits be structured to incorporate incentives and find acceptable solutions to difficult questions that meet the needs for economic growth and Bay restoration?

- **Political Components:** How will the public be engaged? How will agreements be reached that will enable the technical and policy components mentioned above?

Within these three broad areas, there are several categories of tools and approaches that can be used to help maintain the cap and offset any new loads that may occur as the overall pollutant loads necessary to achieve the cap are reduced.

The Roles of Planning and Growth Management

Understanding the limits imposed by Bay nutrient allocations (and local TMDLs) is critical to meeting and maintaining the cap. This understanding should be factored into comprehensive planning discussions with communities and set in a context of quality of life, economic growth, waste treatment capacity and the costs to increase that capacity, and the desire for a restored Chesapeake Bay. There will be trade-offs, and part of the discussion should center on the issues of Smart Growth/Priority Places, the costs to enable high density growth, the need to avoid sprawl, and the planning and development tools that minimize the impacts of growth on the Bay (e.g., cluster development, local treatment versus septic systems, and ESD and LID practices).

A related issue includes the need, in many instances, for better interdepartmental communication. For example, planning must know what public works is thinking and vice versa. The section in this document titled "Coordination between Regulatory- and Incentive-Based Programs" addresses some of these program coordination issues. To assure good communications, the State agencies meet almost every month through the Bay Workgroup and the Bay Cabinet. In addition, MDE and MDP have conducted a series of workshops for local governments to further address questions about linking environmental protection with comprehensive planning.

Building a Growth Management Strategy to maintain nutrient and sediment reduction goals is a challenging task and will be a dynamic process. Elements of this strategy are under development as part of the TMDL implementation guidance, the coordination between different State agencies, and revisions to State regulations and discharge permits. As a comprehensive approach to

growth management develops, the following components must be incorporated:

A Watershed Planning Approach

The water quality impacts of redevelopment and infill projects are best understood in terms of their impact on an entire watershed rather than on adjacent streams. The water quality of streams is determined by the broad land use decisions made in a community. Watershed plans can provide a blueprint for land use that establishes a basis for evaluating development proposals within the broad context of development patterns. Watershed planning can provide a basis for coordination between county and municipal governments on steps needed to protect water quality or to provide flexibility for infill and redevelopment proposals. Infill and redevelopment proposals can be encouraged at the same time that water quality standards are maintained.

A successful watershed plan identifies resource land and water quality issues and develops viable solutions. Such a plan delineates the most appropriate infill and redevelopment sites. It also includes wetland, riparian buffer, and stream restoration areas requiring infrastructure retrofit, enabling developers to readily identify sites and actions for off-site mitigation.

Flexibility

Existing regulations require a reduction of impervious surfaces for most infill and redevelopment projects. They also allow a range of on-site and off-site alternatives to achieve that reduction. For example, regulations require a 20% reduction in impervious surfaces but allow developers to achieve an equivalent reduction on-site, off-site, or by making a fee-in-lieu payment. Projects can include new measures, retrofitting existing facilities, stream restoration, or other BMPs.

In Priority Funding Areas, where it is not always economical to provide stormwater management on-site, the local government should develop a menu of off-site measures in advance as part of a watershed management plan. Local government managers should be trained to encourage such approaches in targeted areas. They should encourage innovative landscaping techniques as a way to achieve reductions in runoff. In some cases, stormwater design flexibility must be coupled with variances from local zoning, building, and construction codes to allow smaller setbacks, narrower street widths, and similar accommodations.

Funding

Redevelopment sites often have a lot of impervious cover and require significant stormwater management to control runoff. Infill and redevelopment sites are generally small, and there is often insufficient area to accommodate on-site management and still retain the economic use of the land. It is often desirable or necessary to look for off-site alternatives to meet mandated stormwater management responsibilities. To ensure the availability of off-site alternatives, local governments should clearly identify where off-site efforts can best benefit the watershed. A coherent policy should govern the use of fee-in-lieu collections to assure that the necessary environmental benefit is realized.

Funding programs for stormwater management should address the maintenance of existing facilities. Local governments should re-evaluate existing maintenance and bonding requirements for private stormwater projects to ensure that sufficient funds are available to keep such projects viable over time. Programs for financing stormwater management should also consider a full range of cost reduction mechanisms and funding opportunities.

The Role of Regulation

The *Clean Water Act* and EPA's associated implementing regulations make water quality restoration mandatory. Key components are permits for wastewater and for "wet weather" controls like stormwater, construction sites, and other sediment and erosion control permits.

Wastewater Permits

The EPA and the State enforce wastewater treatment permit limits that will meet Tributary Strategy goals and achieve and maintain water quality standards. In addition, the Chesapeake Bay Restoration Fund will provide grants to local governments for treatment upgrades necessary to achieve state-of-the-art nutrient removal levels that are necessary to maintain permitted nutrient loading caps for the State's largest wastewater treatment

plants as required by the Bay Permitting Approach established by the EPA and all of the Bay watershed's jurisdictions.

Stormwater Permits

Inspection and compliance for wet weather controls are critical responsibilities at both the State and local levels. In addition, the need to maintain the efficient operation of stormwater control facilities is critical and falls largely to local jurisdictions. Development of stormwater utilities to fund maintenance may be a critical tool to achieve and maintain water quality goals.

The Roles of Offsets and Nutrient Trading

As Maryland's population continues to grow, there will be an increasing need for public infrastructure to accommodate the growth. This may result in some areas requesting additional capacity at their wastewater treatment plants or for an increase in impervious surface for high density living areas. As these situations arise, there will be a need for specific offsets to the increased nutrient and sediment loads that may result.

Potential offsets could include the following:

- **Land Use Changes:** Different land uses release different amounts of pollution. Many factors go into the loads from each land use, including soils, slopes, and existing management. One aspect that is relatively constant is that forested land results in the least amount of pollution. Increasing forest acres could be an excellent means to offset increased pollution from other land use changes resulting from development.

- **"Cross-Source" Partnerships:** Typically four broad sources of Bay pollutants are noted: point sources, urban, agriculture, and air, and that format is followed in this document. There may be opportunities to develop partnerships, agreements, or payments to facilitate additional pollutant controls across these sources (e.g., a local jurisdiction that

wants additional development could pay an agricultural source to install additional practices that might not otherwise be used).

- **Point to Nonpoint Trading:** A wastewater treatment plant seeking additional capacity could purchase or trade for additional nonpoint source controls. An example is installation of BMPs by a waste treatment facility or developer seeking additional capacity.

- **Reductions in Releases to Groundwater:** One example is hooking septic systems to the wastewater treatment plant where treatment to 3-4 mg/l of nitrogen is possible as opposed to leaving the septic systems in place to discharge approximately 15 mg/l. Other technologies are also being examined for their potential to reduce nutrient releases from septic systems.

Future Challenges

Developing and implementing a comprehensive strategy to manage Chesapeake Bay nutrient and sediment load caps will be equally, perhaps even more challenging than achieving those caps. Work to develop many of the core components outlined in this section is already underway; however, assistance and action will be needed at all levels in order for Maryland to implement a Cap Management Strategy. Efforts to coordinate between State agencies and work collaboratively with local governments and other stakeholders must continue indefinitely until regulations, processes, and programs are in place to maintain nutrient and sediment caps. MDE is currently drafting guidelines for administering nutrient offsets and trading, drawing upon similar efforts underway in Pennsylvania and Virginia. The draft guidelines were circulated for interagency and intergovernmental review from October through December 2005.